WHAT IS CLAIMED IS:

1. A wavelength-division multiplexing optical transmission system in which an optical lossy medium, optical amplifiers and Raman amplifiers for compensating for loss in the optical lossy medium are cascade-connected, said system comprising:

power-level equalizing means for equalizing optical power levels input to an optical amplifier of a succeeding stage by adjusting excitation ratio of a Raman amplifier;

optical-SNR equalizing means for adjusting power levels at a transmitting end to equalize optical SNRs at a receiving end; and

correction-value acquisition means for acquiring a correction value that represents an amount of change in power of each wavelength before and after optical-SNR equalization control;

wherein at control for equalizing power levels by a Raman amplifier, said power-level equalizing means performs equalization control using the correction value that represents the amount of change in power of each wavelength before and after optical-SNR equalization control of the previous time, and said optical-SNR equalizing means subsequently performs optical-SNR equalization control.

2. The system according to claim 1, wherein said correction-value acquisition means calculates, as the correction value, a difference between optical power of each wavelength, which has been detected by a spectral analyzer, before and after optical-SNR equalization control.

3. The system according to claim 1, wherein said optical-SNR equalizing means has a variable optical attenuator used in optical-SNR equalization control; and

said correction-value acquisition means acquires the correction value based upon a difference between amount of optical power attenuation of each wavelength at a transmitting end before optical-SNR equalization control and amount of optical power attenuation of each wavelength at a transmitting end after optical-SNR equalization control.

4. The system according to claim 2, wherein said correction-value acquisition means is provided on the

side of a Raman amplifier;

said correction-value acquisition means subtracts the correction value from the optical power of each wavelength detected by an spectral analyzer at the time of optical-power equalization control; and

said Raman amplifier performs optical-power equalization control based upon result of subtraction by said correction-value acquisition means.

5. The system according to claim 2, wherein said correction-value acquisition means is provided on the side of a spectral analyzer;

said correction-value acquisition means subtracts the correction value from the optical power of each wavelength detected by the spectral analyzer at the time of optical-power equalization control and inputs result of subtraction to the Raman amplifier; and

said Raman amplifier performs optical-power equalization control based upon result of subtraction by said correction-value acquisition means.

6. The system according to claim 1, wherein said correction-value acquisition means is a monitoring control unit provided in a repeater station; and

said monitoring control unit calculates, as the correction value, a difference between optical power of each wavelength, which has been detected by a spectral analyzer provided in a Raman amplifier, before and after optical-SNR equalization control and, when optical-power equalization control is performed, subtracts the correction value from the optical power of each wavelength detected by said spectral analyzer and inputs result of subtraction to the Raman amplifier; and

said Raman amplifier performs optical-power equalization control based upon result of subtraction by said monitoring control unit.

7. The system according to claim 1, further comprising an external control unit capable of sending and receiving a monitoring control signal to and from each repeater station;

wherein said external control unit calculates the correction value upon having optical-power data prevailing before and after optical-SNR equalization control input thereto and, when optical-power equalization control is performed by a Raman amplifier,

sends the correction value to the Raman amplifier using the monitoring control signal; and

the Raman amplifier performs optical-power equalization control using a value that is the result of subtracting the correction value from the optical-power data at the time of optical-power equalization control.

8. A repeater station in a wavelength-division multiplexing optical transmission system in which an optical lossy medium, optical amplifiers and Raman amplifiers for compensating for loss in the optical lossy medium are cascade-connected, comprising:

power-level equalizing means for equalizing optical power levels input to an optical amplifier of a succeeding stage by adjusting excitation ratio of a Raman amplifier; and

correction-value acquisition means for acquiring a correction value that represents an amount of change in power of each wavelength before and after optical-SNR equalization control performed at a transmitting end in order to equalize optical SNRs at a receiving end;

wherein when power-level equalization control is performed by a Raman amplifier, said power-level equalization means performs equalization using the correction value acquired in optical-SNR equalization control of the previous time.

9. The repeater station according to claim 8, wherein said correction-value acquisition means calculates, as the correction value, a difference between optical power of each wavelength, which has been detected by a spectral analyzer, before and after optical-SNR equalization control.

10. The repeater station according to claim 9, wherein said correction-value acquisition means is provided on the side of a Raman amplifier;

said correction-value acquisition means subtracts the correction value from the optical power of each wavelength detected by an spectral analyzer at the time of optical-power equalization control; and

said Raman amplifier performs optical-power equalization control based upon result of subtraction by said correction-value acquisition means.

11. The repeater station according to claim 9, wherein said correction-value acquisition means is provided on

the side of a spectral analyzer;

said correction-value acquisition means subtracts the correction value from the optical power of each wavelength detected by the spectral analyzer at the time of optical-power equalization control and input result of subtraction to the Raman amplifier; and

said Raman amplifier performs optical-power equalization control based upon result of subtraction by said correction-value acquisition means.

12. The repeater station according to claim 8, wherein said correction-value acquisition means is a monitoring control unit provided; and

said monitoring control unit calculates, as the correction value, a difference between optical power of each wavelength, which has been detected by a spectral analyzer provided in a Raman amplifier, before and after optical-SNR equalization control and, when optical-power equalization control is performed, subtracts the correction value from the optical power of each wavelength detected by said spectral analyzer and inputs result of subtraction to the Raman amplifier; and

said Raman amplifier performs optical-power equalization control based upon result of subtraction by said monitoring control unit.